

HYPERBRANCHED POLYMER DOMAIN NETWORKS

AND METHODS OF MAKING SAME

ABSTRACT OF THE DISCLOSURE

A curable polymer composition capable of achieving rapid curing, reduced viscosity,

5 high solids content, and a very low or zero volatile organic compound content includes a hyperbranched polymer having functional groups of a first type and a polymer having functional groups of a second type, wherein the functional groups of the second type are reactive with the functional groups of the first type under at least certain conditions. The composition can be cured to form a cross-linked nano-domained network comprising covalently bonded nanoscopic, hyperbranched domains which may be of the same or different chemical composition than the rest of the network. The cured compositions may exhibit high thermal stability, mechanical strength and toughness.

10